

P2368

**CT CHARACTERISTICS PREDICTING OUTCOME IN MILD TRAUMATIC BRAIN INJURY**B. Jacobs<sup>1</sup>, T. Beems<sup>2</sup>, M. Stulemeijer<sup>3</sup>, A.M. van der Vliet<sup>4</sup>, P.E. Vos<sup>1</sup><sup>1</sup>Department of Neurology, <sup>2</sup>Department of Neurosurgery,<sup>3</sup>Department of Medical Psychology, <sup>4</sup>Department of Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands

**Introduction:** Computed tomographic (CT) imaging of the brain is commonly performed in mild traumatic brain injury (MTBI) to identify patients at risk for clinical deterioration. In only a minority of patients CT abnormalities are found. To optimize treatment and for prognostic purposes, knowledge on the CT parameters related to an adverse outcome is relevant, although the amount of patients herewith is restricted. This study aims to identify the CT characteristics associated with an unfavourable outcome after MTBI.

**Patients and methods:** Patients with MTBI, age >16, admitted to the emergency department of our level I trauma centre, from 1998 until 2004, were eligible for inclusion. The EFNS guidelines were used to determine the requirement of an admission CT scan in each individual patient. These CT scans were scored using a pre-defined format. In addition, several clinical variables, including admittance Glasgow Coma Score (GCS) and Injury Severity Score (ISS), were registered. Outcome was determined six months post injury using the Glasgow Outcome Score Extended (GOSE) and dichotomized for statistical analysis.

**Results:** A total of 1157 patients with MTBI (GCS: 13–15) was included, 46 of which had an adverse outcome (GOSE 1–4). Multivariate binary logistic regression analysis showed that status of basal cisterns, presence of traumatic subarachnoid haemorrhage and presence and type of intracranial lesions were independent significant predictors of unfavourable outcome in our MTBI patients.

**Discussion:** This study identifies the individual admission CT characteristics that may add in prediction of outcome of mild TBI. A prognostic CT model should include at least these parameters for an adequate outcome assessment. To ensure applicability, the validity of such a new model is essential and therefore future validation studies should have high priority.

P2369

**MILD TRAUMATIC BRAIN INJURY: REVISED GUIDELINES ON EARLY MANAGEMENT**P.E. Vos<sup>1</sup>, Y. Alekseenko<sup>2</sup>, F. Gerstenbrand<sup>3</sup>, K. von Wild<sup>4</sup><sup>1</sup>Department of Neurology, RUMCN, Nijmegen, The Netherlands,<sup>2</sup>Department of Neurology and Neurosurgery, Vitebsk Medical University, Vitebsk, Belarus, <sup>3</sup>Ludwig Boltzmann Institute For Restorative Neurology and Neuromodulation, Vienna, Austria,<sup>4</sup>University of Muenster Medical Faculty, Münster, Germany

**Objective:** To revise the European Federation of Neurological Societies (EFNS) rules on initial management with respect to ancillary investigations, hospital admission, observation, and follow-up after Mild Traumatic Brain Injury (MTBI).

**Methods:** The MEDLINE, EMBASE, COCHRANE database (1966–2005) were searched using the key words minor head injury, mild head injury, mild traumatic brain injury, traumatic brain injury, guidelines and management. Articles were included if they contained data on classification system used (i.e., admission GCS 13–15) and outcome data (CT abnormalities, need for

neurosurgical intervention, mortality) or management.

**Results:** 12 risk factors for the presence of intracranial complications were identified: GCS at hospital admission, persistent anterograde amnesia, retrograde amnesia >30 minutes, trauma above the clavicles, severe headache, nausea, vomiting, focal neurological deficit, seizure, coagulation disorders, high-energy accident (dangerous mechanism of injury) and intoxication with alcohol/drugs.

**Conclusion:** This guideline presents evidence for the importance of careful neurological examination, assessment of trauma history and recognition of risk factors for the use of CT after MTBI.

(1) Smits M, et al. JAMA 2005 28;294 (12):1519–1525.

(2) Vos PE, et al. Eur J Neurol 2002 9 (3):207–219.

P2370

**MILD TRAUMATIC BRAIN INJURY DIAGNOSIS IN PATIENTS WITH DELAYED ADMISSION TO HOSPITAL**

Y. Alekseenko

Department of Neurology and Neurosurgery, Vitebsk Medical University, Vitebsk, Belarus

**Introduction:** The diagnosis of mild traumatic brain injury (MTBI) is usually complicated, because the majority of MTBI symptoms are mainly of a subjective character. To clarify the significance of some diagnostic criteria and improve the standard diagnostic protocols, we analyzed the structure of main clinical signs, course of recovery and most common difficulties in initial management of MTBI patients with respect to different time of hospital admission.

**Methods:** This study includes 161 males with MTBI (aged 16–39) consecutively admitted to the regional hospital. In 61 patients the accident took place on the background of mild and moderate alcohol intoxication (AI). The quantitative analysis (duration/intensity) of MTBI symptoms was carried out.

**Results:** About two thirds (76%) of MTBI patients were admitted to hospital in the first three days after the trauma with more extensive and frequent disorders of consciousness and amnesia in comparison with patients admitted later. Different structure and duration of subjective disorders including posttraumatic headache pattern were observed in both compared groups of patients. Early admission was associated with relatively favourable recovery from subjective symptoms compared with the delayed one. AI was observed in both groups of patients and it seems to play a different role in admission to hospital. Several categories of difficulties and typical mistakes in regard to initial MTBI diagnosis and management were identified.

**Conclusion:** Time of admission to hospital significantly influences the accuracy of MTBI diagnosis. Delayed hospital admission and concomitant AI should be considered in MTBI diagnostic protocol.

P2371

**PROINFLAMMATORY CYTOKINES LEVEL IN CEREBROSPINAL FLUID IN CRANIOCEREBRAL TRAUMA**

M.M. Gerasimova, A.I. Abusaleh

Tver Medical Academy, Tver, Russia

Cranio-cerebral trauma (CCT) is an actual problem of neurosurgery that may result both in recovery and in stable disability. Presently the role of immune factors in CCT pathogenesis is dis-

Sep

# EUROPEAN JOURNAL OF NEUROLOGY

Volume 13, Supplement 2, September 2006

## Abstracts of the 10<sup>th</sup> Congress of the European Federation of Neurological Societies

Glasgow, UK

Sept. 2-5, 2006

### Disclaimer:

This abstract book has been produced using author-supplied copy. Editing has been restricted to some corrections of spelling and style where appropriate. No responsibility is assumed for any claims, instructions, methods or drug dosages contained in the abstracts: it is recommended that these are verified independently.



#### EFNS HEADOFFICE

Breite Gasse 4-8  
A-1070 Vienna  
Austria  
Tel.: + 43 1 889 05 03  
Fax: + 43 1 889 05 03 13  
e - mail: [headoffice@efns.org](mailto:headoffice@efns.org)  
[www.efns.org](http://www.efns.org)



1471-0552(200609)13:09+2;1-U